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ABSTRACT

An observational study explored whether characteristic behavioral patterns of an educable mentally retarded (EMR) population were unique and served as a label for identification in the social milieu. Of particular interest were differences between EMR children who were integrated into the regular classroom and their non-retarded peers. A time-sampling method was used to count frequencies of 12 behavior categories selected to cover attention, deviance, and communication issues. One of the clearest findings was that the integrated and special class children engaged in significantly less interpersonal interaction than did their non-retarded peers. Differences between the groups also emerged in terms of behavior patterning. Factor analysis of the behavior categories yielded three factors, one identified with the special class EMRs (unusual guy syndrome) and the other two correlated with the non-EMR control children (bad guy and good guy syndromes). The integrated children were described less by an identifiable pattern of their own than by the absence of a pattern. It was thought that the integrated children may be avoiding engaging in any noticeable active behaviors. (For related studies, see also EC 042 063 and 042 066.) (Author/CB)

STUDIES IN LEARNING POTENTIAL

AN OBSERVATIONAL STUDY OF SEGREGATED AND INTEGRATED EMR CHILDREN AND THEIR NONRETARDED PEERS: CAN WE TELL THE DIFFERENCE BY LOOKING?

by

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AN OBSERVATIONAL STUDY OF SEGREGATED AND INTEGRATED EMR CHILDREN AND THEIR NON-RETARDED PEERS; CAN WE TELL THE DIFFERENCE BY LOOKING?

Dorothy Gampel, Robert Harrison, and Milton Budoff

Abstract

An observational study was carried out to explore whether characteristic behavioral patterns of a mildly retarded population are unique and serve as a label for identification in the social milieu. We were particularly interested in whether there were differences between EMR children who have been integrated into the regular classroom and their non-retarded peers. A time-sampling method was used to count frequencies of twelve behavior categories selected to cover attention, deviance, and communication issues.

One of the clearest findings was that the integrated and special class children engaged in significantly less interpersonal interaction than did their non-retarded peers. Differences between the groups also emerged in terms of behavior patterning. Factor Analysis of the behavior categories yielded three factors, one identified with the special class EMRs (Unusual Guy Syndrome) and the other two correlated with the non-EMR control children (Bad Guy and Good Guy Syndromes). The integrated children were described less by an identifiable pattern of their own than by the absence of a pattern.

The integrated children may be avoiding engaging in any active behaviors which would cause notice. This indeed protects them from critical reaction, but is educationally nonprofitable, and personally restricting. The results of this study point to the need for more direct training with this population toward active involvement with outside things and people.

AN OBSERVATIONAL STUDY OF SEGREGATED AND INTEGRATED EMR CHILDREN AND THEIR NON-RETARDED PEERS; CAN WE TELL THE DIFFERENCE BY LOOKING?

Dorothy Gampel, Robert Harrison and Milton Budoff

The recent trend toward integrating educable mentally retarded children in regular classes with their non-retarded peers is a laudable one in its attempt to boost their academic achievement and social acceptability. This new design is based in part on the fact that EMRs placed in regular class show higher academic performance than they do in a special class setting. (See, e.g., Kirk, 1963.) However, problems remain with respect to their social acceptability once integrated into regular class (see, e.g., Gottlieb and Davis, in press).

The present study was undertaken to explore whether behavioral events as they occur in the classroom would account for the finding that these mildly retarded children continue to hold a lower position in the social hierarchy even when they are in closer contact with regular class children. The main question is whether there are particular kinds of behavior these children engage in which continues the label of "different". What is the actual prevalence of specific motoric problems or general awkwardness in this population which would discriminate them from other children?

There are surprisingly few observational studies of special class children in view of the increasing popularity of systematic observation as a method in the study of children (see, e.g., Herbert, 1970). We have found no other attempt to describe the mildly retarded child's behavior as being or looking different from his non-retarded peers. Observational studies of special class children which have been reported have dealt with amount of time on task (Hamerlynck, Martin and Rolland,

1968) and teacher-style in the special class compared to the regular class (Stuck and Wyne, 1971). Neither of these studies investigated whether behavior patterns of the children identified them as different.

In the present research the classroom behaviors and verbal interaction patterns of integrated and segregated EMR children were compared with the behavior of their regular class peers as a way of looking at reasons for the social rejection the mildly retarded experience in the public school setting.

At the same time, in order to further define differences <u>within</u> the retarded population, we were interested in whether our behavioral variables correlate with indices of IQ and of Learning Potential (LP). The latter is an attempt to differentiate among children in the mildly retarded population on the basis of a procedure testing for ability to gain from special coaching (see Budoff, 1968). The measurement of LP consists of administering the Ravens Matrices, then using a coaching procedure aimed at demonstrating modes of solution, and retesting to determine the effect of the training. Normative data on special class children have yielded a three-category system; nongainers, gainers, and high scorers (the latter achieve a high score on the first administration which is not appreciably boosted by the coaching). Are these groups also behaviorally different?

This is primarily a descriptive project, aimed at identifying salient features of the wide range of behavior which characterize different populations of children.

Procedure

<u>Subjects</u>

The 24 subjects were drawn from an ungraded suburban public school (K - 6th grade) to form three comparison groups as follows: (1) the 8 EMRs

in a segregated special class setting, (2) the 8 EMRs who had been integrated into the ungraded school for up to four years (mean duration of integration 2.5 years), and (3) 8 regular class children who attend the same classes as the integrated EMR group, selected on the basis of sociometric status to avoid inadvertent bias (2 high, 2 low and 4 falling in the middle). These groups will be referred to as special class (SC), integrated (INT) and control (C) respectively.

Chronological age and IQ information for each of these three groups are presented in Table 1. The IQs for the two EMR groups are primarily WISC scores (3 of the 16 were Stanford Binet) and for the control group are Kuhlmann Anderson (except for one WISC).

Insert Table 1 about here

From Table 1 it can be seen that the mean IQ of the integrated EMRs is higher than the mean for those remaining in special class (76.9 versus 64.4) and that the integrated group is approximately a year younger than the special class group. This is a selection bias stemming from the initial design of the integrated program set up in 1967. The special class children selected by their teachers for integration were those whose behavior was considered acceptable and who were thought to be most likely to demonstrate academic progress. This bias is not considered to be a limitation in the study or to warrant covariant analysis, since at issue is a description and analysis of behaviors which may contribute to social rejection. In the absence of data showing age and IQ correlates of the behaviors studied, we have chosen to assume that these differences are irrelevant to our interests in descriptive data.

Development of the Behavior Categories for Recording

Working from models available in Werry and Quay (1969) and Haring et al., (1969) twelve behavior categories were developed to cover a broad range of

attention-type behaviors, deviant behaviors (both of a "peculiar" and aggressive or hostile type) and modes of verbal interaction. The first step was selection of relevant behavior items by observing in the classroom and listing all behaviors as they occurred. After a trial period of two weeks, some of the behaviors initially thought to be of interest were deleted as irrelevant, vague, or too low in frequency, and new categories were inserted. Criteria for inclusion were that the category be explicit, reliable between coders, and of high enough frequency to be a potential differentiator. The two observers who participated in this phase checked their records for discrepancies, and discussed any differences after each trial observation. The final form of the coding sheet is shown in Figure 1. The criteria (see Appendix) for each of the behaviors were written to minimize ambiguity. The present study was conducted after this period of development of clearly delineated behavior categories and training of the observers.

Insert Figure 1 about here

Method of Observing

A time-sampling method was used, each observation unit involving a five-minute sample broken into ten units of 20 seconds of observation and ten seconds of recording. The category system was not mutually exclusive: all behaviors which occurred during the 20-second observation period were recorded with the one restriction that a given category be tallied only once each period. No behaviors which occurred during a 10-second recording period were tallied. Timing was done with the sweep hand of a watch. Each subject was observed on six different days, at different times each day, for a total of 30 minutes of observation for each subject over six weeks. All observations were done in the classroom. The data were recorded only while the children were working at

their desks. No observations were made during structured group activities. The children spent the majority of the time working on their own at their desks, but the style of the school included freedom to move about to consult with the teacher or with peers.

Question of Observer Effect

The children had become accustomed to having visitors in the classroom and seemed able to ignore the observers. Occasionally a child would come over to them to ask a question, in which case they answered in a friendly manner and kept on with their task. Care was taken that the child's identity on the coding sheet could not be seen, and an attempt was made to avoid identifying the child under observation by using visual sweeps rather than constantly directed looking.

Results

Reliability of the Observers

Reliability was assessed by correlating the two observers' ratings for each of the 12 variables over 27 subjects and six observations (N = 162)*. The correlations were high (r's between .79 and .95), with the exception of the PV- category (r = .55), and were all significant beyond $p < .001$.

Behavior Categories Compared for Relative Incidence

The means and standard deviations for each of the 3 placement groups

* Three subjects had been included in this analysis who were not used in further statistical analyses, as they comprised a separate group but of insufficient N. They were EMR children who had never been placed in special class.

across the 12 behavior categories are shown in Table 2.

Insert Table 2 about here

From this table it can be seen that the category yielding the highest frequencies over all groups was attentiveness to task. This was followed by restlessness (↷), positive verbal interaction (VP+, PV+) and self-stimulation (S) (Mean frequencies are 9.33, 3.17, 3.55, 3.29, and 3.01 respectively.) The behaviors yielding the lowest frequencies were ones usually labelled deviant, such as aggression toward peers or by peers toward them (≡P, P≡), hostile verbal interaction (VP-, PV-), and motorically awkward or peculiar responses (>) (mean frequencies are .10, .05, .11, .08, .31 respectively). In all categories cited asdeviant, the mean frequencies are less than one out of a total possibility of ten. The same trends have been replicated in a separate study of special class children in another school system to be reported separately.

Analysis of Variance for Placement, Sex, Observer, and Serial (observation number) Effects

Frequencies in each of the 12 behavior categories were analyzed separately in a 3 (Placement groups) x 2 (Sex) x 2 (Observer) x 6 (Observation number) analysis of variance design. The full matrix showing this analysis across the 12 variables is presented in the Appendix. The relevant features are summarized by scoring category and again by main effects (placement, sex, observer and observation number).

Summary of Analysis of Variance Yield by Category

Attention: All three groups had high frequencies (the lowest mean is 8.40 out of a maximum possible score of 10) with no significant differences

either in terms of main effects or interactions.

Distraction: The integrated children were highest in this category and the control children lowest. This difference approached but did not reach significance ($F = 3.01$, 2 and 18 df, $.10 > p > .05$). Significant findings in this category were an observer effect ($F = 11.71$, 1 and 18 df, $p < .01$), observation number ($F = 3.41$, 5 and 90 df, $p < .01$) interaction between observer and observation number ($F = 4.73$, 5 and 90 df, $p < .01$) and also the three way interaction between observer, placement and sex ($F = 4.80$, 2 and 18 df, $p < .025$). The significant observer effect and subsequent interactions reflect the two observers' reported difficulty with this category, and the interaction between observer and observation number probably describes the working out of their differences as a function of time and discussion.

Out of Seat: There were no significant effects in this category other than an observer x observation number interaction ($F = 2.54$, 5 and 90 df, $p < .05$), again reflecting modification of the observers' criteria as they worked together.

Restlessness: The control group was most restless, followed by the integrated and then special class subjects. This difference approached but did not reach significance ($F = 3.22$, 2 and 18 df, $.10 > p > .05$).

Self Stimulation: This category was also of highest frequency for the control subjects but the difference did not achieve significance ($F = 1.48$, 2 and 18 df. Again there was a significant interaction between observer and observation number as described above ($F = 4.66$, 5 and 90 df, $p < .01$).

Awkwardness: The frequencies were unusually low across the three groups (all less than 1) with the special class being slightly higher than the others. This difference approached but did not reach significance ($F = 2.68$, 2 and 18 df, $.10 > p > .05$).

Aggressive Interaction: (:P, P:) Here the frequencies were again markedly low (the highest was .16) and there was no significant placement effect. Two interactions in the P: category were significant: observer x sex, (F = 4.43, 1 and 18 df, $p < .05$), and the 4-way interaction between observer, observation number, placement and sex (F = 2.50, 10 and 90 df, $p < .05$). This indicates difficulty interpreting this variable as it applies to boys versus girls (the fact that one of the observers was male and the other female could be relevant here).

Positive Verbal Interaction: (PV+, VP+) This is the category which yielded the main placement effect with significant F ratios for both the subject speaking to his peer (F = 6.49, 2 and 18 df, $p < .01$) and the peer speaking to subject (F = 8.80, 2 and 18 df, $p < .01$). The source of this main effect is in the difference between the combined EMR groups and the control subjects, with the EMR subjects interacting significantly less than the non-EMRs (VP+: F = 12.64, 1 and 18 df, $p < .001$; PV+: F = 16.77, 1 and 18 df, $p < .001$). Means for these variables for the 3 groups are shown in Figure 2.

Insert Figure 2 about here

Two interactions were also significant in each category. For VP+, the interaction between observer, placement and sex reached significance (F = 6.97, 2 and 18 df, $p < .01$) as did observation number x placement (F = 2.56, 10 and 90 df, $p < .01$). The means for each placement group as a function of observation number suggest that over successive observations there were fewer positive verbal interactions (a suppression or avoidance effect of being observed?) for the integrated and non-EMR subjects and more for the special class subjects (an attempt to look good to the observers?). This same trend held in the observation number x placement interaction for PV+ (F = 2.44, 10 and 90 df, $p < .025$). In addition, there was an observer effect in the PV+ category (F = 4.90, 1 and 18 df, $p < .05$).

Hostile Verbal Interaction: (VP- and PV-) There was one significant effect here, which was in the interaction between observer and observation number ($F = 3.31$, 5 and 90 df, $p < .01$), again reflecting the increased agreement of the observers as they worked with these categories.

Summary of Analysis of Variance Yield by Main Effects

Placement. The main effect of placement was for the positive verbal interaction dimension. The two EMR groups interacted with their peers significantly less than the controls. This effect is described in detail above.

Sex. There were no significant effects of sex of subject, but this variable did contribute to significant interactions in some categories (Observer x Placement x Sex, Observer x Sex, and the 4-way interaction), suggesting that part of the differences between observers' use of the criteria for the categories had to do with their perceiving the behaviors differently according to sex of subject.

Observer. The two significant observer effects (distraction and PV+), taken along with their contribution to the significant interactions with other factors, indicated that in spite of high inter-observer reliability overall, there were continued problems with responding in the same way under the criteria for these categories.

Observation Number. The only significant order effect was in the distraction category(also yielding a significant observer effect), where there was a gradual decrease across all groups. Although this trend might represent a subject adaptation effect, it could also reflect the adaptation of the observers as a result of their becoming accustomed to and becoming fond of the children, and thus being more reluctant to place their behavior in a nonflattering category. It should also be noted that this category was the most difficult for the observers to rate consistantly, and the interaction could reflect their increased agreement as they worked on the criteria.

Teacher - Peer Components in Positive Verbal Interaction

In the verbal interaction categories the observers recorded whether the interaction was with another child or a teacher by a coding system. The component frequencies are shown in Figure 3, where it can be seen that the control children maintained their higher rate of peer-peer interaction but interacted least with the teachers.

Insert Figure 3 about here

The two EMR groups were at the same relatively low level of interaction with peers, but the integrated children interacted less with the teachers. Thus, the lower mean rate of verbal interaction displayed by the integrated compared to the segregated EMRs reflects the lower rate of interaction with the teachers. This finding is consistent with Grosenick's report (1969) that the rate of hand raising decreased after the special class children had been integrated in a regular class.

Factor Analysis

For each of the 24 subjects the mean frequency and standard deviation of each of the 12 behaviors (averaged over 6 observations and 2 observers) were computed. These means and standard deviations were intercorrelated and analyzed by the principal component method of factor analysis. Two normal varimax rotations were done, one with the first 6 principal components, accounting for 81% of the variance, and the other with the first 3 components, accounting for 57% of the variance.

Since means and S.D.s for a given variable tended to load on the same factor, thus essentially comprising a set of 12 variables rather than 24, the 3 component solution was considerably more interpretable. These factor loadings are shown

in Table 3. Factor score means and standard deviations for each of the placement groups are shown in Table 4.

Insert Tables 3 and 4 about here

Factor I (Unusual Guy Syndrome) contains five items which break down into two components: low restless energy level (low self-stimulation and low restlessness) and high deviancy (high VP- and PV-, high awkwardness, high aggressive acts (≡P) which do not evoke a response, high out of seat). (It should be noted that the latter item would be a variable depending on the teaching style in the classroom.) This factor describes a set of behaviors which ordinarily would not be expected to intercorrelate such as low restlessness and high incidence of aggressive acts which occur in isolation without evoking a response from the peer. As can be seen in the means in Table 4, this factor is mostly associated with the special class children and least with the control. A F test of this effect, comparing special class with integrated EMRs approached significance ($p < .07$).

Factor II (Bad Guy Syndrome) contains three items and describes a set of behaviors usually considered undesirable in the classroom (high aggressive interaction, low attention and high variability in attention). This factor is most prevalent in the control group contrasted with the combined EMR groups, a trend which also approached significance ($p < .09$).

Factor III (Good Guy Syndrome) contains two behaviors usually considered desirable in the classroom (low distraction, high positive verbal interaction). This factor is most associated with the control group, and the F ratios comparing all three groups, and the combined EMRs contrasted with the control, attained significance ($p < .003$ in each case).

IQ and Learning Potential Correlates of Behavior Categories

Analysis of the behavior categories by IQ and LP were carried out with the EMR population only, since LP data are not available for the control children. (The LP groups were distributed evenly across class placement.) The mean frequencies and standard deviations on the behavioral items for each of the Learning Potential (LP) groups are shown in Table 5.

Correlation coefficients for each of the 12 behaviors with IQ and Ravens first and second administration scores are shown in Table 6. They are generally low and insignificant. The only significant correlation was a negative one between awkwardness and IQ (r = -.55, $p < .05$).

Insert Tables 5 and 6 about here

Analysis of variance for frequencies on each of the 12 behaviors across LP Status (nongainer, gainer, high scorer) yielded no significant F ratios. However, it should be noted for further exploration that the gainers displayed more verbal interaction than did the other two groups. The three LP groups do differ in terms of factor scores, as is shown in Table 7. The gainer is the only EMR group which yields a positive factor score on Factor III (the Good Guy Syndrome), a factor associated previously only with the control group. This trend approaches significance (F = 2.77, 2 and 13 df, $.10 > p > .05$).

Insert Table 7 about here

Discussion

The incidence of deviance. An unexpected finding in this study is the low incidence of deviant, hostile or aggressive behavior of the EMR children whether separated in special class or integrated into regular class. Frequencies of occurrence were low and no different from the non-EMR controls. This is relevant information for regular class teachers being confronted with an imminent inte-

gration program and not knowing what to expect of children previously isolated in a special class. If the children in this study are a representative sample, (and data from a different population of EMRs which we will report later imply they are), the expectation of disruptive and difficult behavior problems is not warranted by these data. Hamerlynck et al. (1968) report a similar finding of notable absence of disruptive, attention-getting behavior in a special class setting.

Another unanticipated result was that the EMR population had the same or lower frequencies on self-stimulation than the controls, a category initially selected to tally behaviors we thought might be unique to the retarded population. Criteria for this were "Activity directed toward the self and not involving an object. This category would include rocking, thumb sucking, head tapping, hair and body stroking, hair pulling, talking to self." It was the special class retarded children who engaged in less of this activity than the integrated and the control children. In fact, this category of self-stimulation fits into a more general trend for the EMR population to be less active than the controls. This trend is seen in other categories which represent an index of energy-expenditure such as restlessness, aggressive interaction and verbal interaction: the special class children are least active (with the exception of being out of their seat, which is probably a situational effect rather than a child-behavior effect), the control children most active, and the integrated EMRs somewhere in between. It is interesting to note an exception to this when we consider verbal interaction where the integrated EMRs take the low position. Could this reflect an inhibitory effect of their regular class placement? In summary, the activity level of our EMR population - both integrated and special class - was comparatively low, even when it came to behaviors selected for their implied immaturity.

Differences in verbal interaction. The significantly higher incidence of peer interaction on the part of the control children is a meaningful finding.

Both EMR groups interacted with their peers and teachers significantly less than the control subjects, and the integrated students interacted even less than their segregated peers. This means that both groups are losing out in terms of stimulation toward learning through unstructured interpersonal contacts, and suggests that emphasis on reinforcing such interaction in the classroom when it does occur should be included in an integrated design. Of course, the integrated children do get one - to - one tutoring time in addition to their classroom work, but it would seem that a goal of integration should be to increase the child's interaction with his peers and his regular classroom teachers.

It should be added that when the amount of interaction with the teacher is taken out of the means, the difference between the EMR groups and the control in terms of peer interaction is enhanced. Thus, according to these data, the integrated EMR loses out by interacting with peers at the same reduced rate as does the EMR in special class, and yet interacts with the teacher less. This finding is consistent with that of Grosenick (1969), who reports a decrease in the special class children's handraising after integration.

Can we tell the difference by looking? Except for the aforementioned significantly lower amount of verbal interaction engaged in by the EMR children, there are no clear observable differences in the data in terms of single behaviors. However, there are patterns which emerge from the factor analysis which do present some behavior combinations which are characteristic of the different placement groups. On the first factor, the Unusual Guy Syndrome, the integrated EMR group is closer to the controls than to the special class EMR group. This factor includes high negative verbal interaction, awkwardness, isolated aggressive acts, low self-stimulation and low restlessness. The fact that the integrated group is closer to the control than to the other retarded group would suggest that although there may well be a retarded syndrome which mani-

fests itself in the special class setting, it is not the factor responsible for their identification as different, once in an integrated setting.

We have no way of assessing in the present study whether the difference between the two retarded groups is due to the influence of new models available to the integrated children or to a selection procedure which led to integration of the most acceptable children. That the modeling hypothesis could well be at work is suggested by written comments from the observers who report that those children who seemed uncoordinated in special class were not so all of the time. This implies some variability in behavior which could yield to modification under other circumstances. (The question of influencing change through integration is addressed in a separate study in process in a different school, where baseline observations were made on the children prior to their integration.) Whatever the source, it is clear that these observable behaviors describing the special class children do not identify the integrated EMR.

However, the other two factors do not identify the integrated EMR either. On Factors II and III (Bad Guy Syndrome and Good Guy Syndrome) the integrated children look more like the other retarded children, each of the EMR groups having negative scores on these factors. Thus a control child is likely to be aggressive and have problems with attention, and/or be friendly with his peers and be able to sustain task-oriented behavior without being distracted by other events in the room. In other words, a control child is more likely to be characterized by a positive or a negative syndrome, the retarded groups combine components in different ways. The high negative mean on Factor III (-.639) for the integrated group describes these children as having little interaction with their peers and relatively high distractibility.

Thus, although the integrated EMR group does not "look like" the special class EMR population, neither does it match the regular class group. One sig-

nificant feature is that this group is more socially withdrawn. In fact, the negative or intermediate values yielded by the integrated group on each of the 3 factors (-.296, -.041, -.639, respectively) implies that they are somewhere in limbo between the special class and control subjects.

It is interesting to note that Factors II and III are similar to Swift and Spivack's (1969) factors relating teacher rated behaviors to achievement in normal and disturbed (but not retarded) children. They found two broad and relatively independent factors representing positive attitudinal and behavioral measures relating to good achievement, and negative behaviors and attitudes relating to poor achievement. These two factors also describe two groups within our control population, but do not apply in the EMR groups.

Relationship to IQ and Learning Potential

The only significant correlation between behavior category and IQ was a negative one with awkwardness, which is not easy to interpret unless we hypothesize that some brain dysfunction correlates with each. However, examination of medical history available in the school records yields only one report of abnormal EEG, (reported for a child in special class). Other implied malfunctioning in terms of visual-motor difficulties are present to essentially the same extent in both EMR groups. One other feature of the correlation table that seems worth noting is the regularity of the negative correlations with IQ but positive correlations with Ravens 2 scores of all four verbal interaction categories. These four categories, which form a logical group, are the only ones of the twelve behaviors on which the direction of the correlation is different for IQ than it is for Ravens. The positive correlation of ability level (in this case Ravens score) with verbal interaction is consistent with other results relating intelligence and social interaction measures (Harrison et al., 1970). In view of this, the negative correlation of ability level as measured by IQ with verbal interaction is peculiar, but could suggest

that the LP assessment procedure has measured the functional level of ability of the child more directly than has the IQ in this population.

The small and generally insignificant correlations between behaviors and Learning Potential Status are not in line with the expectation from other Learning Potential data that gainers and high scorers are a different population from the nongainers (Budoff et al., 1968). This could well be due to the small number of subjects involved for this analysis or to the fact that single behaviors do not communicate enough information when considered in isolation, especially when we are looking for more subtle differentiation within the retarded population. However, when we look at the three LP groups in terms of behavior patterns defined by factor scores, some interesting findings emerge.

The gainers sort into both Factor I (correlated with special class subjects) and III (correlated with non-EMR control subjects). The high scorers' pattern looks more like the integrated EMR group (yielding negative scores on each of the factors). The nongainer stays with the special class Unusual Guy Syndrome. The gainers are the only retarded group which has a positive score on the Good Guy (non-retarded) Syndrome, a trend which approaches significance. This finding of more of the non-retarded pattern in the gainer group, taken along with the gainers' higher verbal interaction, could provide some leads as to why some children profit from the training experience used in the LP assessment procedure and some do not. The gainers' uniqueness could be higher level of motivation to achieve, more adequate social skills, or a more complex combination of motivational and ability characteristics. More research of both a behavioral and cognitive nature is clearly in order before an answer to this question is found.

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Table 1

Subject Data for Each of the Placement Groups

		CA (in months)	IQ
Special Class	Mean	152.0	64.4
(N = 8)	SD	16.7	8.3
	Mdn	162.0	63.5
Integrated EMR	Mean	139.5	76.9
(N = 8)	SD	16.3	7.9
	Mdn	142.0	76.0
NonEMR Controls*	Mean	128.5	128.1
(N = 6 for CA,	SD	8.5	17.0
N = 7 for IQ)	Mdn	130.0	140.0

* One IQ and two CAs were missing from records.

Table 2

Means and Standard Deviations[1] for each Behavior for Three Placement Groups

		Attention (+)	Distraction (//)	Out of seat (X)	Restlessness (Q)	Self-stimulation (S)	Uncoordinated motor response (>)	Aggressive behavior to peer (:P)	Aggressive behavior from peer (P:)	Positive verbal response to peer (VP+) *	Negative verbal response to peer (VP-)	Positive verbal response from peer (PV+) *	Negative verbal response from peer (PV-)
EMR in	$\bar{X}$	9.05	1.54	1.10	3.31	2.43	0.85	0.04	0.01	3.30	0.15	2.90	0.12
Special Class	SD	1.85	2.20	2.30	3.02	2.31	1.66	0.20	0.10	2.45	0.48	2.39	0.39
Integrated	$\bar{X}$	8.54	1.93	0.90	3.54	3.29	0.02	0.10	0.03	2.55	0.02	2.40	0.04
EMR	SD	2.10	2.31	1.50	2.53	2.77	0.14	0.40	0.32	2.45	0.14	2.42	0.20
Control	$\bar{X}$	8.40	0.88	0.97	4.65	3.31	0.03	0.16	0.12	4.80	0.15	4.56	0.08
	SD	2.45	1.89	1.77	3.22	3.14	0.31	0.62	0.42	2.58	0.50	2.71	0.28

1) Based on an N of 8 subjects x 2 observers x 6 observations = 96.

* Differences are significant at better than the .01 level.
The source of the significance is the comparison between the combined EMR groups and the control.

Table 3

Factor Loadings of Behavior Variables (Means and Standard Deviations) on 3 Rotated Factors.

	I		II		III	
PV-	(S.D.)	.756	≡P ($\bar{X}$)	.880	PV+ ($\bar{X}$)	.891
	($\bar{X}$)	.653	(S.D.)	.879	(S.D.)	.487
X	(S.D.)	.739	P≡ ($\bar{X}$)	.880	VP+ ($\bar{X}$)	.880
	($\bar{X}$)	.607	(S.D.)	.874	(S.D.)	.465
VP-	(S.D.)	.709	+ ($\bar{X}$)	-.685	// ($\bar{X}$)	-.829
	($\bar{X}$)	.661	(S.D.)	.415	(S.D.)	-.607
>	($\bar{X}$)	.676				
	(S.D.)	.603				
Ω	($\bar{X}$)	-.606				
	(S.D.)	-.425				
S	($\bar{X}$)	-.543				
	(S.D.)	-.448				
PV+	(S.D.)	-.568				
VP+	(S.D.)	-.464				

Table 4

Factor Means and Standard Deviation, for each of the three Placement Groups

		Factor 1	Factor 2	Factor 3
Special Class	M	0.610	-0.458	-0.190
	SD	1.233	0.410	1.105
Integrated	M	-0.296	-0.041	-0.639
	SD	0.508	0.947	0.785
Control	M	-0.313	0.499	0.830
	SD	1.007	1.355	0.543

Table 5

Means and Standard Deviation for 12 Behaviors According to LP Status

		Attention (+)	Distraction (//)	Out of seat (X)	Restlessness (Q)	Self-stimulation (S)	Uncoordinated motor response (>)	Aggressive behavior to peer (=P)	Aggressive behavior from peer (P=)	Positive verbal response to peer (VP+)	Negative verbal response to peer (VP-)	Positive verbal response from peer (PV+)	Negative verbal response from peer (PV-)
Nongainer	M	8.810	1.774	1.052	3.453	2.786	0.405	.107	.036	2.655	.024	2.286	.083
N = 7	SD	0.762	0.951	0.691	1.144	1.272	0.624	.185	.066	1.572	.040	1.167	.118
Gainer	M	8.517	1.350	1.450	3.384	2.800	0.833	.050	.000	3.467	.200	3.183	.100
N = 5	SD	0.863	0.789	0.612	1.669	1.308	1.771	.075	.000	1.162	.240	0.918	.109
High Scorer	M	9.125	2.146	0.458	3.437	3.063	0.000	.042	.083	2.729	.042	2.604	.063
N = 4	SD	0.759	0.829	0.433	1.524	0.682	0.000	.083	.166	0.143	.083	0.208	.080

Table 6

Correlation Coefficients between Frequencies on each of the 12 Behavior categories and Ravens and IQ scores

	Attention (+)	Distraction (//)	Out of seat (X)	Restlessness (@)	Self-stimulation (S)	Uncoordinated motor response (>)	Aggressive behavior to peer (=P)	Aggressive behavior from peer (P=)	Positive verbal response to peer (VP+)	Negative verbal response to peer (VP-)	Positive verbal response from peer (PV+)	Negative verbal response from peer (PV-)
Ravens 1	.264	.329	-.223	.144	-.122	-.074	-.246	.196	.029	.111	.074	.231
Ravens 2	-.118	.201	-.094	.162	.131	-.352	-.286	.083	.141	.158	.222	.154
IQ	-.010	.099	-.278	.289	.367	-.553*	-.187	.034	-.087	-.324	-.022	-.240

* P .05

Table 7

Means and Standard Deviations of Factor Scores for Each of the Three Learning Potential Status Groups combined across EMR Placement Groups

		Factors		
		I	II	III
Nongainer	M	.245	-.246	-.832
(N = 7)	SD	.727	.315	1.067
Gainer	M	.568	-.336	.323
(N = 5)	SD	1.568	.260	.712
High Scorer	M	-.511	-.149	-.607
(N = 4)	SD	.222	1.127	.492

Figure 1. Sample recording sheet for observers, where directions were to circle each behavior which occurred in a given 20-second observation time period.

Child_____ Task_____ Date_____

Observer_____ Time_____

Key

1. + Attentive to task
2. // Distraction
3. X Out of seat
4. ↻ Restlessness
5. S Self-stimulation
6. > Uncoordinated motor response
7. =P Aggressive behavior to peer
8. P= Peer Aggression to S
9. VP+ Speaks to peer in friendly manner
10. VP- Speaks to peer in hostile manner
11. PV+ Peer speaks to subject in friendly manner
12. PV- Peer speaks to subject in hostile manner

Task	Motor Behavior				Verbal Behavior			
1. + //	X	↻	S	=P	P=	VP+	VP-	PV+	PV-
2. + //	X	↻	S	=P	P=	VP+	VP-	PV+	PV-
3. + //	X	↻	S	=P	P=	VP+	VP-	PV+	PV-
4. + //	X	↻	S	=P	P=	VP+	VP-	PV+	PV-
5. + //	X	↻	S	=P	P=	VP+	VP-	PV+	PV-
6. + //	X	↻	S	=P	P=	VP+	VP-	PV+	PV-
7. + //	X	↻	S	=P	P=	VP+	VP-	PV+	PV-
8. + //	X	↻	S	=P	P=	VP+	VP-	PV+	PV-
9. + //	X	↻	S	=P	P=	VP+	VP-	PV+	PV-
10. + //	X	↻	S	=P	P=	VP+	VP-	PV+	PV-

Sum:

Comments: (predominant behavior)

Figure 2. Mean Positive Verbal Interaction as a function of class placement. Solid line represents verbal response to peer, and dotted line represents verbal response from peer to subject.

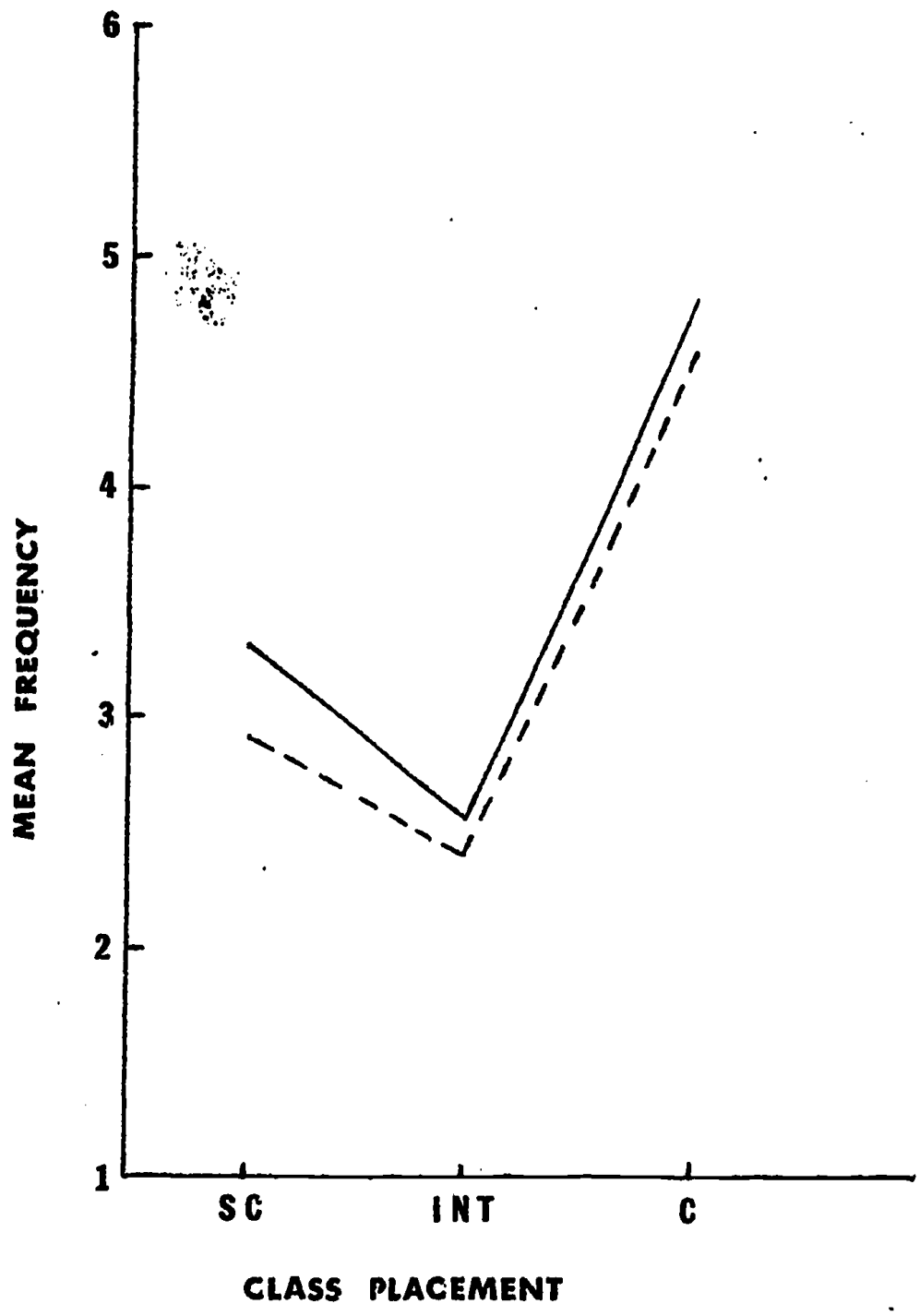
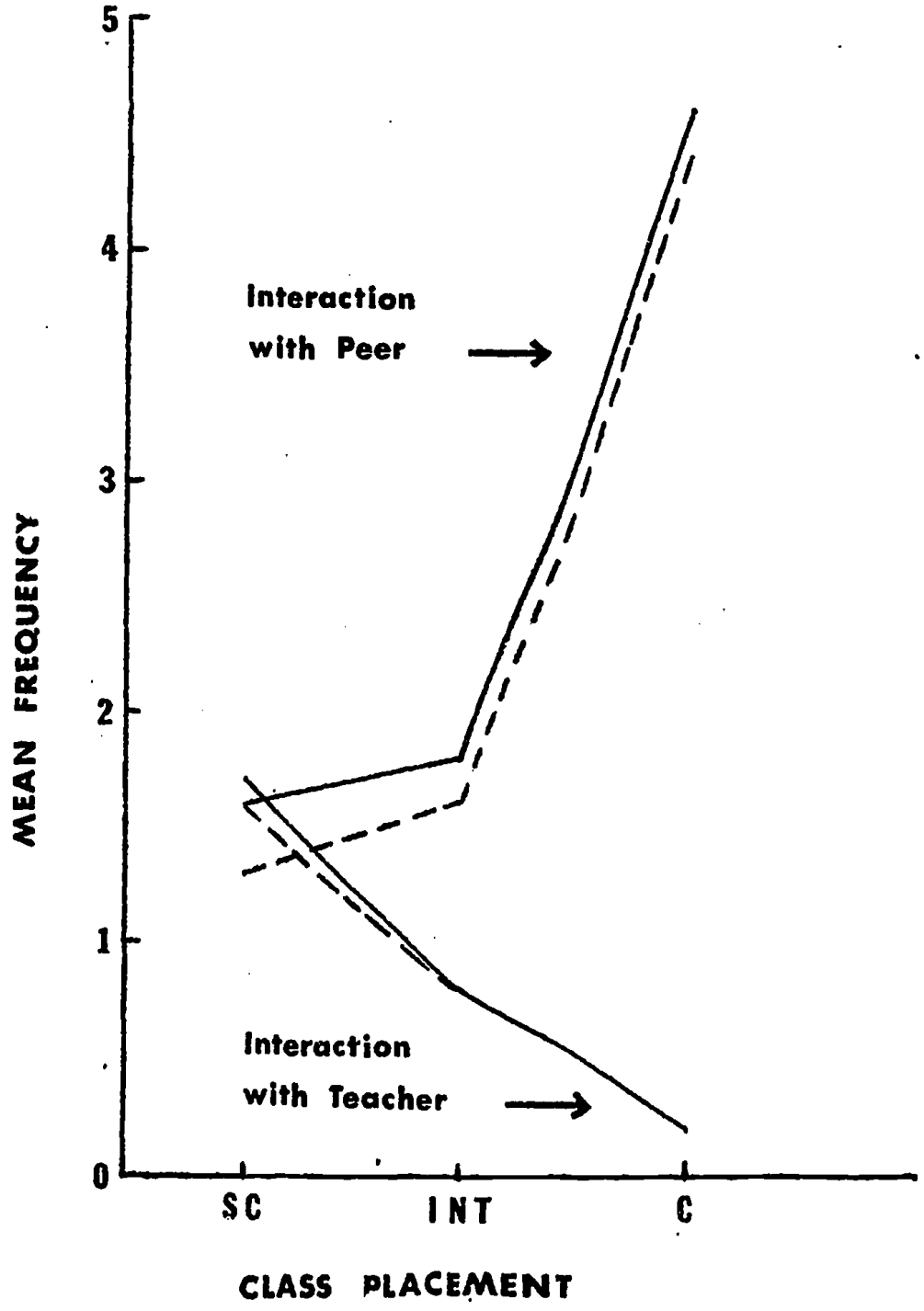

6
5
4
3
2
1
MEAN FREQUENCY
SC
INT
C
CLASS PLACEMENT

Figure 3. Mean Positive Verbal Interaction shown separately for subjects' interaction with peers and with teachers, as a function of class placement. As in Figure 2, solid line represents subjects' verbal response, and dotted line represents peer's or teacher's response to subject.


5
4
3
2
1
0
MEAN FREQUENCY
Interaction
with Peer
Interaction
with Teacher
SC
INT
C
CLASS PLACEMENT

Appendix

Criteria for Behavior Categories

1. Attentive to task (+):

   Actively engaged in task. Attending to teacher when relevant, working on materials at desk when relevant.

2. Distraction (//):

   This category should be reserved for <u>passive</u> <u>withdrawal</u> from task. Examples would be looking around the room, turning in seat, seemingly daydreaming, looking at another child, any index of boredom, listlessness or retreat from task,

3. Out of seat (X):

   Criterion has been set at 2 feet or more away from the desk. Do not count here if the teacher has called on the child to go to the board. Count everything else. On those occasions when all children are working at the board, count as out of seat those times when the child being observed leaves the board to go elsewhere. All times out of seat should be tallied, no matter what the purpose.

4. Restlessness (↺):

   This should represent any fidgeting which serves as energy dissipation. Examples would be moving in seat, rapid leg bouncing, repetitious or continuously throwing anything in the air and catching it, fingering an object, playing with a shoestring or other part of clothing, etc.

5. Self stimulation (S):

   Activity directed toward the self and not involving an object. This category would include rocking, thumb sucking, head tapping, hair and

body stroking, hair pulling, talking to self.

6. Uncoordinated motor response (>):

Any uncoordinated behavior which can be described as uncommonly seen, peculiar or strange. A clumsy gait, wave of the hand, awkward movements in general.

7. Aggression to peer (=P):

Any category-appropriate physical interaction between subject and peer. An abrupt move away from an approaching child which is a clear rejection of the child would qualify.

8. Aggression from peer (P=):: (same as #7)

9 & 10. Speaks to peer:

(VP+) Plus can be talk about the task, any friendly remark, or what appears to be a friendly remark. Griping about something else with a peer, when this attitude is shared by the peer, qualifies as plus.

(VP-) Negative: any provocative or offensive remark as indexed either by content, facial expression or negative reaction of the other child (negative reaction of the other child is not necessarily that the first child said something negative).

If this verbal interaction is with the teacher rather than a peer, indicate this with a square around the appropriate symbol rather than the customary circle.

11,12. Peer to subject:

Same as above only involving peer addressing subject. (PV+; PV-)

Be sure to sum all columns before turning the sheets in.

Comments: Here please note the predominant behavior. Indicate anything striking about the child's behavior or appearance. Also note if there is a sign of developing or existing physical illness.

Notes and Comments on Observation as a Method

The Observation System as a Method

The high and significant reliability coefficients across all categories and subjects indicate a satisfactory level of agreement between them. However, the significant observer effects in the distraction category (PV+) and the significant interactions of observers with other main effects (sex on the peer aggression to subject category; observation number on distraction, out of seat, and self stimulation) relflect some problems of criteria which warrant attention. Spontaneous reports from each of the observers during the study corraborate the fact that they had problems with the distraction category and with verbal interaction when it was brief. The interactions with observation number reflect the changes in use of criteria as the observers continued to discuss and iron out discrepancies, and to influence each other to adopt modifications. Thus we would suggest more stringent observer training routines, preferably using video tapes as a constant source for training and practice, and several refresher exposures to the taped models during the actual observation period.

The Effect of the Observation Procedure on the Classroom

Although there were no reports of any effect of the observers on the children from the teachers, we did find one main effect (a decrease in distraction over time) and two significant interactions between observation number and placement (VP+ and PV+). Considering the difficulty the observers had with the distraction category, the decrease is probably due to changes in criteria being used by the observers, rather than a real observation effect. (There was a significant observer effect here and also a significant interaction between observer and observation number.)

On the other hand, there was a significant interaction between placement and

observation procedure alone. The special class children increased in this category whereas the other two groups decreased. The former group also approached the observers more, and were in general more attentive to the observers than the other two groups. In fact, the children in the regular class (both integrated EMR and controls) tended to ignore or even avoid the observers, on a few occasions even traveling to another part of the room. This would suggest that the well-established "outer-directedness" of a retarded population (see, e.g., Zigler, 1966)[a] is as situationally determined by class placement as it is by institutionalization.

Thus, we are suggesting that there was a differential effect of the observer in the classroom, depending on the subject population (and classroom as a whole?) being observed. This is an interesting finding in connection with result of another study designed to test the effect of the observer directly (see, e.g., Masling & Stern, 1969)[b]. Looking at pupil behavior and teacher behavior and using a correlational method, they found no consistent patterns emerging over successive units of observation, as did we when considering behavior categories alone. The effect turns up when interaction with subject population is analyzed. This result is in fact, what Masling and Stern predict, viz., that the effect of the observer will be in large part a function of "what is being observed, who is being observed, and who is doing the observing" (p. 353). Furthermore, we heartily agree with these authors that although it may be difficult to measure observer effects, questions remain about the assumption that the "natural" classroom survives when observers are stationed in the room.

[a] See reference page 20

[b] See reference page 19

Summary Analysis of Variance Table, Observation Study

		Variables							
		1 Attention		2 Distraction		3 Out of seat		4 Restlessness	
	df	MS	F	MS	F	MS	F	MS	F
Between Subjects	23								
Placement	2	11.40	NS	26.63	3.01*	1.07	NS	48.79	3.22*
Sex	1	13.04	NS	8.65	NS	6.59	NS	30.36	NS
Pl x Sex	2	4.08	NS	3.39	NS	4.64	NS	48.08	3.17*
Error	18	8.12		8.84		6.92		15.15	
Within Subjects	264								
Observer	1	2.53	3.04*	6.12	11.71***	0.28	NS	3.55	NS
Obs x Pl	2	2.70	3.24*	0.26	NS	0.09	NS	4.05	3.10*
Obs x Sex	1	0.22	NS	0.09	NS	0.00	NS	0.99	NS
Obs x Pl x Sex	2	0.47	NS	2.51	4.83**	0.00	NS	0.002	NS
Obs x Subj/Groups	18	0.83		0.52		0.19		1.31	
Observation #	5	9.46	NS	27.30	3.41***	6.99	NS	21.53	NS
Ob # x Pl	10	6.94	NS	7.13	NS	5.96	NS	21.50	NS
Ob # x Sex	5	2.34	NS	8.47	NS	7.39	NS	7.74	NS
Ob # x Pl x Sex	10	8.16	NS	5.94	NS	6.61	NS	17.78	NS
Ob # x Subj/Groups	90	9.22		8.00		7.26		14.74	
Observers x Ob #	5	0.34	NS	2.85	4.72***	0.46	2.54**	1.22	NS
Obs x Ob # x Pl	10	0.96	NS	0.53	NS	0.17	NS	0.80	NS
Obs x Ob # x Sex	5	0.11	NS	0.75	NS	0.06	NS	1.70	NS
Obs x Ob # x Pl x Sex	10	0.95	NS	0.51	NS	0.11	NS	1.30	NS
Obs x Ob # x Subj/Groups	90	0.85		0.60		0.18		1.37	

Summary Analysis of Variance Table, Observation Study

		Variables							
		5 Self-stimulation		6 Uncoordinated motor response		7 Agression to peer		8 Agression from peer	
	df	MS	F	MS	F	MS	F	MS	F
Between Subjects	23								
Placement	2	24.51	NS	21.95	2.68*	0.32	NS	0.32	NS
Sex	1	21.22	NS	4.68	NS	0.03	NS	0.22	NS
Pl x Sex	2	15.64	NS	6.22	NS	0.45	NS	0.20	NS
Error	18	16.51		8.19		0.36		0.14	
Within Subjects	264								
Observer	1	3.34	3.42*	0.003	NS	0.03	NS	0.003	NS
Obs x Pl	2	0.17	NS	0.15	NS	0.01	NS	0.02	NS
Obs x Sex	1	2.42	2.48*	0.26	NS	0.00	NS	0.06	4.43**
Obs x Pl x Sex	2	0.03	NS	0.36	NS	0.03	NS	0.02	NS
Obs x Subj/Groups	18	0.98		0.19		0.03		0.01	
Observation #	5	6.12	NS	0.55	NS	0.58	NS	0.20	NS
Ob # x Pl	10	13.68	NS	0.58	NS	0.35	NS	0.09	NS
Ob # x Sex	5	16.77	NS	0.07	NS	0.05	NS	0.16	NS
Ob # x Pl x Sex	10	16.17	NS	0.15	NS	0.53	NS	0.23	NS
Ob # x Subj/Groups	90	13.89		0.88		0.35		0.18	
Observers x Ob #	5	4.59	4.66***	0.20	NS	0.02	NS	0.02	NS
Obs x Ob # x Pl	10	1.30	NS	0.11	NS	0.03	NS	0.02	NS
Obs x Ob # x Sex	5	1.28	NS	0.05	NS	0.03	NS	0.03	NS
Obs x Ob # x Pl x Sex	10	0.45	NS	0.06	NS	0.02	NS	0.04	2.50**
Obs x Ob # x Subj/Groups	90	0.99		0.12		0.03		0.01	

Summary Analysis of Variance Table, Observation Study

		Variables							
		9 Positive verbal response to peer		10 Negative verbal response to peer		11 Positive verbal response from peer		12 Negative verbal response from peer	
	df	MS	F	MS	F	MS	F	MS	F
Between Subjects	23								
Placement	2	126.00	6.49***	0.50	NS	123.55	8.80***	0.17	NS
Sex	1	0.23	NS	0.12	NS	1.05	NS	0.06	NS
Pl x Sex	2	5.79	NS	0.40	NS	1.74	NS	0.19	NS
Error	18	19.42		0.46		14.05		0.21	
Within Subjects	264								
Observer	1	0.59	NS	0.01	NS	2.72	4.89**	0.12	3.57*
Obs x Pl	2	0.72	NS	0.06	NS	0.35	NS	0.04	NS
Obs x Sex	1	0.45	NS	0.08	3.54*	0.02	NS	0.00	NS
Obs x Pl x Sex	2	3.19	6.97***	0.04	NS	0.02	NS	0.00	NS
Obs x Subj/Groups	18	0.46		0.02		0.56		0.03	
Observation #	5	16.14	NS	0.45	NS	12.44	NS	0.16	NS
Ob # x Pl	10	24.51	2.56***	0.19	NS	25.98	2.44**	0.14	NS
Ob # x Sex	5	8.04	NS	0.03	NS	11.89	NS	0.18	NS
Ob # x Pl x Sex	10	12.49	NS	0.24	NS	14.57	NS	0.09	NS
Ob # x Subj/Groups	90	9.57		0.29		10.64		0.13	
Observers x Ob #	5	0.73	2.25*	0.12	3.31**	0.21	NS	0.05	NS
Obs x Ob # x Pl	10	0.51	NS	0.08	2.06*	0.43	NS	0.05	NS
Obs x Ob # x Sex	5	0.39	NS	0.02	NS	0.42	NS	0.03	NS
Obs x Ob # x Pl x Sex	10	0.63	1.95*	0.06	NS	0.12	NS	0.05	NS
Obs x Ob # x Subj/Groups	90	0.32		0.04		0.36		0.04	

* = p .10
** = p .05
*** = p .01